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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/445,990	12/16/1999	LUTZ LANGHANS	LANGHANS	1632

20151 7590 07/02/2003

HENRY M FEIEREISEN, LLC
350 FIFTH AVENUE
SUITE 4714
NEW YORK, NY 10118

EXAMINER

MENEFEE, JAMES A

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/445,990

Examiner

James A. Menefee

Applicant(s)

LANGHANS ET AL.

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8,10 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8,10 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.



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TECHNOLOGY CENTER 2800

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2828

DETAILED ACTION

Response to Amendment

In response to the amendment filed 5 May 2003, claims 1 and 3-5 are amended. Claims 1-8 and 10-11 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melamed et al. (previously cited 3,975,694) in view of Plaessmann et al. (previously cited US 5,615,043).

Regarding claim 1, Melamed discloses a resonator for solid-state lasers having a laser rod, a rear mirror, and a semi-reflecting output mirror. It is disclosed that the front semi-reflecting mirror may be ground into the rod, in which case it will necessarily be in close proximity to the rod. It is not disclosed that the end of the rod closest to the convex mirror is also convex. Plaessmann teaches that an end of a gain medium may be given a convex shape (col. 8 lines 21-39). It would have been obvious to one skilled in the art to give a convex shape to the end of the laser rod nearest the convex mirror, as this will compensate for any negative thermal lensing effects in the system, as taught by Plaessmann. It is not explicitly disclosed that laser rod is arranged asymmetrically between the mirrors. However, when the front mirror is ground into

Art Unit: 2828

the rod, as deemed obvious, then the rod will necessarily be disposed asymmetrically between the mirrors.

Regarding claim 6, the rod is an Nd:glass rod.

Regarding claim 10, when the front mirror is ground into the rod, then the front mirror will necessarily be in close proximity to the rod, within 10 mm.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magni et al. (previously cited from Optical and Quantum Electronics, 1991).

Regarding claim 3, Magni discloses a stable resonator for solid-state lasers with a laser rod which exhibits a thermally induced positive lensing effect, a rear mirror and a semi-reflecting output mirror, wherein the rear mirror is convex (see Fig. 6b, p. 1117). It is not disclosed that the output mirror is formed by the end of the laser rod. Examiner contends that it would have been obvious to one skilled in the art to make integral the output mirror with the rod because "the use of a one piece construction... would be merely a matter of obvious engineering choice." See *In re Larson*, 340 F.2d 965, 144 USPQ 347, 349 (CCPA 1965).

Regarding claim 2, Fig. 6b shows the output end of the rod and the semi-reflecting mirror are planar, thus should the mirror be obviously made integral as shown above, the semi-reflecting end of the mirror rod will be planar.

Claims 4-5, 7-8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magni in view of Chesler et al. (previously cited US 3,680,000).

Art Unit: 2828

Regarding claims 4-5, Magni teaches the limitations as shown above, but does not disclose that the output end of the rod should be convex. Chesler teaches that an end of a laser rod 31 facing an output mirror may be convex. It would have been obvious to one skilled in the art to make the end convex in this manner in order to achieve large TEM mode radius, as taught by Chesler.

Regarding claims 7-8, the rod may be an Nd:YAG rod.

Regarding claim 11, it is not explicitly disclosed that the distance between the rod and output mirror be as claimed. However, Magni discloses that the various lengths and the radius of the mirror can be varied (see p. 1116). It would have been an obvious experimentation of ranges to vary the lengths and the radius of curvature so that the requirements of the claim are met, while still satisfying the requirements for the parameters of Magni.

Response to Arguments

Regarding applicant's arguments against the 35 U.S.C. 103(a) rejection of claims 1, 6, and 10, (Melamed in view of Plaessmann, p. 8 of response) the argument is not persuasive.

Applicant's argument is based on applicant's assertion that Plaessmann's discloses "that one or both ends of the laser rod must have a concave curvature to provide a positive lensing effect" (p. 8 of response, emphasis in original). However, the Examiner believes that this disclosure is saying the opposite. In the section (col. 8 of Plaessmann) quoted by applicant, it is stated that rods with concave curvatures compensate for positive thermal lensing and rods with convex curvatures compensate for negative thermal lensing. Examiner asserts that in order to compensate for negative thermal lensing, the system must exhibit positive thermal lensing, and

Art Unit: 2828

thus the ends of the rod should be convex (to provide positive thermal lensing, by compensating for negative thermal lensing), and this limitation of the claim is met.

Applicant's arguments with respect to the rest of the claims, the arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (703) 605-4367. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the

Application/Control Number: 09/445,990

Page 6

Art Unit: 2828

organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



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JM
June 29, 2003